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09/443,692	11/19/1999	TAKESHI ANDO	13191	7589

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EXAMINER	
TSEGAYE, SABA	

ART UNIT	PAPER NUMBER
2619	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/443,692	ANDO, TAKESHI	
	Examiner	Art Unit	
	Saba Tsegaye	2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,5,8 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2, 3, 5, 8 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed 12/05/07. Claims 2, 3, 5, 8 and 10 are pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 2, 3, 5, 8 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not adequately describe a separate maximum transmission rate **calculated as each channel's full transmission rate capability**.

Claim Rejections - 35 USC § 103

4. Claims 2, 3, 5, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tiedemann, Jr. et al. (US 5,914,950) in view of Tanaka et al. (US 5,825,761).

Regarding claims 2 and 10, Tiedemann discloses a communication system capable of variable rate transmission. Remote station 6 from Fig. 1 initiates high-speed data transmission on the reverse link by requesting permission from channel scheduler 12 (*receiving a transmission*

demand from each of a plurality of mobile station at a base station). See col. 6, lines 40-42. As shown in Fig. 2, the channel scheduler 12 connects to all selector elements within base station controller 10. See col. 7, lines 27-39. The channel scheduler is also able to schedule the information so that data can travel at that particular rate a predetermined number of frames later (*determining a maximum transmission rate for a next schedule transmission time slot . . .*). The scheduler 12 sends the maximum scheduled transmission rate **to each remote station** (*transmission rate for each of a plurality of transmission channels*). See col. 9, lines 47-54. The maximum transmission rate is found based on a number of factors. One of the factors includes the frame error rate (*based directly on . . . a transmission error rate*). See col. 18, lines 10-30. For example, the channel scheduler can assign lower transmission rates to remote stations if the FER is above a predetermined threshold. See col. 16, lines 33-43. Tiedemann also discloses the use of CRC bits for detection of frame error (*error rate determined via a CRC for each mobile station*). See col. 27, line 62-col. 28, line 6. Tiedemann discloses that the data transmission rate is also affected by **the channel condition** (*taking account of radio wave propagation condition*). See col. 19, lines 17-19, and col. 20, lines 19-26. Tiedemann discloses that the data queue size is also taken into consideration in assigning the maximum transmission rate. It follows logically that a bigger data size will relate to a bigger queue size (*taking account . . . a data size associated with each said transmission demand*). See at least col. 21, lines 48-67. Priority order can also be established after taking various factors into account. See col. 32, lines 13-16.

Again, the amount of data to be transmitted is a factor in the discussion involving priority assignment (*determining a priority order . . .based on the data size*). See col. 32, lines 48-65. Tiedemann also discloses that priority can be assigned based on the frame error rate (*determining*

priority order . . .based on . . .the transmission error rate). See col. 33, line 58-col. 34, line 13. **Channel conditions** can also play a role in priority, where a remote station can be temporarily be placed on hold until channel conditions improve, so it would have a very low priority of transmission (*determining a priority order . . .based on the radio wave propagation condition*). See col. 33, lines 23-26. After processing the collected information, channel scheduler 12 assigns the maximum scheduled transmission rate that can be used by each remote station 6 for high speed data transmission over the reverse link (*notifying each said mobile station of said maximum transmission rate determined at said base station*). Tiedemann discloses that channel scheduler assigns the maximum scheduled **transmission rate, for each** scheduled user, based on a set of system goals, a list of system constraints, and collected information on status of the communication network (See column 5, lines 7-15; Abstract). Furthermore, Tiedemann discloses that the assignment of the maximum scheduled transmission rate can be accomplished by at least two embodiments. In the first embodiment, channel scheduler 12 assigns the maximum scheduled transmission rate to each scheduled user. And in the second embodiment, the scheduled user requests a maximum scheduled transmission rate *(...each of the plurality of transmission channels having a separate maximum transmission rate*) (column 9, lines 55-60; column12, lines 30-41; column 13, lines 16-32). The **maximum supportable** transmission rate **for each cell** can be calculated by multiplying the quantity on the right hand side of equation (2) with W/y **(...***a separate maximum transmission rate calculated as each cannel's full transmission rate capability***)** (see column 11, lines 30-43; column 10, line 45). In addition, Tiedemann discloses that "**remote station 6 can also transmit a requested transmission rate to the cell... the requested transmission rate represents the maximum transmission rate**

which remote station 6 can support" (column 11, line 44-52). As shown in fig. 1, ***a corresponding base station 4 services each cell.*** Each of mobile station (*remote stations*) communicates with **one** or more base stations 4 (column 6, lines 4-15). More specifically, mobile stations 6a and 6b communicate exclusively with base station 4c, mobile station 6d and 6e communicate exclusively with base station 4d. This shows that a plurality of transmission channels for each of *mobile satiations forming a communication link between each mobile station and one base station.*

However, Tiedemann dose not expressly discloses maximum transmission **rate calculated directly from values representing a radio wave propagation condition.**

Tanaka teaches that the maximum transmission rate is calculated directly from values representing a radio wave propagation condition (column 1, lines 24-30).

It would have been obvious to one ordinary skill in the art at the time the invention was made to use the teachings from Tanaka of adding a value representing a radio wave propagation condition to the collection of all pertinent information disclosed by Tiedemann in order to provide optimal assignment of maximum scheduled transmission rate for each scheduled user based on the collected information. One of ordinary skill in the art would have been motivated to do this because it would decrease the transmission delay in data communication in a CDMA system.

Regarding claim 3, Tiedemann discloses that the channel scheduler can wait until the next scheduling period and assigns a new rate based on the new-collected information. In this

manner, the maximum rate can be variable (variably changing a transmission rate according to the maximum rate). See Fig. 7, and col. 9, lines 24-54.

Regarding claim 5, as mentioned previously, Tiedemann discloses that the system can use the FER information to determine the condition of a transmission path. For example, if the there is a repeated frame error, then this can indicate that the reverse link is impaired (a transmission condition detecting means...detecting its error ratio). As mentioned previously, the mobile stations can demand up to a maximum rate, or less depending on what the mobile station requires. The system uses collected information to determine the rate needed by each channel (transmission rate detecting means), and it assigns a maximum rate based on this information (a maximum rate control information determining means). See Fig. 7, and col. 9, lines 24-54. The channel scheduler is responsible for sending the maximum rate information (notifying said mobile station of said maximum rate). See Fig. 7, and col. 9, lines 47-49.

Regarding claim 8, Tiedemann discloses that at a base station 4, the reverse link signal is received by antenna 44 and provided to RF unit 42. RF unit 42 filters, amplifies, down converts, and quantizes the reverse link signal and provides the digitized signal to channel element 40. Channel element 40 demodulates the digitized baseband signal, the inverse of the signal processing functions done at remote station 6 (a demodulation device). See col. 7, lines 9-26. The scheduling system disclosed in Tiedemann can be applied to any commemoration system capable of variable rate communication-high speed data transmission occurs over a single variable rate channel (variable rate communication path). Based on collected information and system goals, the channel scheduler assigns the maximum transmission rate-some of this

collected data and system goals can include channel condition and a priority list of required performance (determining maximum rate by taking account of radio wave propagation condition; a maximum rate control). See col. 19, lines 14-29, and col. 18, lines 24-30. The system uses collected information to determine the rate needed by each channel (transmission rate detecting means). As mentioned previously, the FER can be used when deciding on the transmission rate (detecting its error ratio).

Response to Arguments

5. Applicant's arguments with respect to claims 2, 3, 5, 8 and 10 have been considered but are moot in view of the new ground(s) of rejection.

6. Applicant's arguments filed 12/05/07 have been fully considered but they are not persuasive. Applicant argues that "*Tiedemann Jr. et. Provides only one maximum rate that is applied to all transmission channels. In Tiedemann Jr. et al. the maximum scheduled transmission rate is not the actual maximum transmission rate of a given transmission channel.*" Examiner respectfully disagrees with Applicant assertion. Tiedemann Jr. et al. clearly discloses that a selector element 14 assigns maximum scheduled transmission **rates** for the scheduled users **at each frame** in the scheduled users. Further, Tiedemann Jr. et al. discloses that channel scheduler 12 dynamically adjusts **the maximum scheduled transmission rate of the scheduled user at each frame to fully utilize the capacity** available for each cell in the network (column 13, lines 1-11).

Applicant argues (Remarks, page 8) that "*Tiedemann Jr. et al. is not utilized at the fullest transmission rate capable.*" Examiner respectfully disagrees. Tiedemann clearly discloses that the maximum scheduled transmission rate is assigned in accordance with *a set of system goals*, a

list of system constraints, and *collected information of the status* of the communication network. In addition Tiedemann discloses that selector element 14 computes **the maximum scheduled transmission rate based on the allocated capacity** and the set point of the scheduled user. An available capacity can be allocated based on the priority of the scheduled users (column 12, lines 23-55). The maximum supportable transmission rate **for each cell** can be calculated by multiplying the quantity on the right hand side of equation (2) with W/y (see column 11, lines 30-43; column 10, line 45). In addition, Tiedemann discloses that "**remote station 6 can also transmit a requested transmission rate to the cell... the requested transmission rate represents the maximum transmission rate which remote station 6 can support**" (column 11, line 44-52). Channel scheduler 12 dynamically *adjusts the maximum scheduled transmission rate of the scheduled user at each frame to fully* ***utilize the capacity available*** *for each cell* in the network (column 13, lines 1-10). Based on all of this, it can be concluded that the system of Tiedemann Jr. et al. does disclose that *"...each channel of the plurality of channel having a separate maximum transmission rate calculated as each channel's full transmission capability..."*

Still on page 8, Applicant argues that "*Tanaka et al. fails to disclose or suggest determining a maximum transmission rate for each of a plurality of transmission channels fro a next scheduled transmission time slot for each the mobile station and notifying each mobile station of the determined maximum transmission rate of each of the plurality of transmission channels.*" it respectfully submitted that the rejection is based the combined teaching of the Tiedemann Jr. et al. patent and the Tanaka patent, and that the Tiedemann Jr. et al. patent, as

pointed out above, office action, does teach this feature. Examiner believes that the pending claims as they currently stand read in the Tiedemann Jr. et al. and Tanaka references.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Saba Tsegaye
Examiner
Art Unit 2619

ST
February 4, 2008

2/15/08

WING CHAN
SUPERVISORY PATENT EXAMINER